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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/708,517	11/09/2000	Gordon W. Braudaway	YO-99-397	1743

30743 7590 06/07/2004

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EXAMINER	
LEE, TOMMY D	

ART UNIT	PAPER NUMBER
2624	4

DATE MAILED: 06/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/708,517	Applicant(s) BRAUDAWAY ET AL.	
	Examiner Thomas D. Lee	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 6-17* is/are rejected.

7)☒ Claim(s) *3-5* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 6, 8-14, 16 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,760,925 (Saund et al.).

Regarding claims 1, 6 and 8-11, Saund et al. disclose a method for correcting distortion in an image of a scanned document, comprising: placing a reference pattern on a page (light-stripe source projects image of a slit onto a bound document (column 6, lines 28-35)); obtaining an image of said page containing printed information at least a portion of which is distorted (image acquisition system acquires image of bound document (column 7, lines 52-54)); detecting said reference pattern in the image indicative of the distortion (light stripe projected across bound document acquired by image acquisition system (column 7, lines 49-51)); computing an amount of the distortion in said image by analyzing the detected reference pattern (image processing

system determines page shape transform using light stripe image (column 7, lines 57-60)); and correcting the distortion in said image based on the amount of distortion computed in said computing step (image of bound document de-warped to form corrected image (column 7, lines 60-63)). Said reference pattern includes a series of markings having a predetermined spatial relationship (noting Fig. 1, light stripes 5 and 6 have a predetermined spatial relationship; in alternative embodiment, a grid (series of intersecting horizontal and vertical lines having predetermined spatial relationship) may be projected onto bound document (column 6, lines 38-42)). The method further comprises: deleting said reference pattern from said image (image of bound document acquired when light stripe projection system is turned off (column 7, lines 51-54)); and outputting said image as a corrected image free of said distortion (corrected image data stored or output directly to a peripheral device (column 7, lines 29-34)). Said outputting step includes one of printing said corrected image, transmitting said image along a communication line, and storing said image in a computer (corrected image data stored or output directly to a peripheral device (column 7, lines 29-34)). Said distortion results from a curvature located in an interior portion of said page (distortion caused by curvature of a page in the vicinity of the binding (column 1, lines 43-46)). Said page is a page in a bound volume and the distortion in said page results from a curvature in said page caused by a binding of said bound volume (column 1, lines 43-46).

Regarding claims 12-14 and 16, Saund et al. disclose a distortion correction processor adapted for use with a digital imaging device, said distortion correction processor comprising: an optical recognition unit which locates a reference pattern in a

document image (light stripe projected across bound document acquired by image acquisition system (column 7, lines 49-51) with internal optics (column 6, lines 6-14)); a distortion computation unit which determines an amount of the distortion in said image by analyzing said reference pattern (image processing system determines page shape transform using light stripe image (column 7, lines 57-60)); and a bitmap processor which corrects the distortion in said image based on the amount of distortion computed by the distortion computation unit (image of bound document de-warped by image processing system to form corrected image (column 7, lines 60-63)). The reference pattern is located at a predetermined position within the image(noting Fig. 1, light stripes 5 and 6 located at a predetermined position with respect to bound document 10); and includes a series of markings having a predetermined spatial relationship (light stripes 5 and 6; in alternative embodiment, a grid (series of intersecting horizontal and vertical lines having predetermined spatial relationship) may be projected onto bound document (column 6, lines 38-42)). Said optical recognition unit locates a second reference pattern in said document image at a second location within said image (light stripe 5 represents first reference pattern, and light stripe 6 represents second reference pattern); wherein said distortion computation unit computes an amount of the distortion in said image by analyzing said reference pattern and said second reference pattern (light stripes 5 and 6 used in determining amount of distortion (column 13, lines 26-42)); and wherein said bitmap processor corrects distortion in said image based on the amount of distortion computed by said distortion computation unit (image of bound

document de-warped by image processing system to form corrected image (column 7, lines 60-63)).

Regarding claim 17, Saund et al. disclose a digital imaging system, comprising: a document having a reference pattern (light stripe projected across bound document acquired by image acquisition system (column 7, lines 49-51)); an optical scanner which scans said document to obtain an image, said image containing distortion resulting from curvature of said document on a support surface of said optical scanner (image acquisition system acquires image of bound document (column 7, lines 52-54)); a distortion correction processor which receives said image from said optical scanner, said distortion correction processor including: (a) an optical recognition unit which locates said reference pattern in said image (light stripe projected across bound document acquired by image acquisition system (column 7, lines 49-51) with internal optics (column 6, lines 6-14)); (b) a distortion computation unit which determines an amount of the distortion in said image by analyzing said reference pattern (image processing system determines page shape transform using light stripe image (column 7, lines 57-60)); (c) a bitmap processor which corrects the distortion in said image based on the amount of distortion computed by the distortion computation unit (image of bound document de-warped by image processing system to form corrected image (column 7, lines 60-63)); and an output for outputting the corrected image to an output device (corrected image data stored or output directly to a peripheral device (column 7, lines 29-34)).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 2, 7 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saund et al.

Regarding claim 2, Saund et al. do not disclose printing reference patterns (light stripes 5 and 6) on said page (bound document 10). However, with light stripe projection system turned on, the light stripes projected across the bound document are acquired by the image acquisition system (column 7, lines 48-51). This is functionally equivalent to printing the light stripes onto bound document, since the image acquisition system obtains the light stripes as they appear on the document, for the purpose of determining the amount of curvature of the document. So long as the amount of

curvature is detected by the image acquisition system, it makes no difference whether or not the light stripes are physically printed onto the document. Therefore, printing the light stripes would have been an obvious modification of Saund et al. to one of ordinary skill in the art.

Regarding claims 7 and 15, Saund et al. disclose that, in an alternative embodiment, a grid (series of intersecting horizontal and vertical lines having predetermined spatial relationship) may be projected onto bound document (column 6, lines 38-42). Whether the lines are equidistantly spaced is not specifically mentioned, but one of ordinary skill in the art would have recognized that the horizontal and vertical lines of a grid may or may not be equidistantly spaced as a matter of design choice, so long as the curvature of the document is detectable, and thus it would have been obvious to provide a series of equidistantly spaced lines or bars as another method for measuring the surface shape of a bound document.

Allowable Subject Matter

7. Claims 3-5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter: No prior art has been found to disclose or suggest attachment of one or a plurality of strips containing a reference pattern at predetermined locations and orientations to a page, for determining page distortion, as recited in claims 3 and 4. Claim 5 depends from claim 4.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas D. Lee whose telephone number is (703) 305-4870. The examiner can normally be reached on Monday-Friday (7:30-5:00), alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on (703) 308-7452. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thomas D. Lee
Primary Examiner
Art Unit 2624

tdl
May 27, 2004